Please add the following claims:

100.(new) An apparatus according to claim 97 wherein the pump comprises a pre-vacuum pump or a low vacuum pump.

101.(new) An apparatus according to claim 97 further comprising a pump controller adapted to control a rate of evacuation of the gas in the chamber by changing a speed of the pump.

REMARKS

Status of the Claims

Claims 1-30, 38-75 and 84-101 are presently pending in the case. Claims 1, 7, 9, 15, 23-24, 47, 55, 64-65, 72, 84, 92 and 97, are being amended and claims 100-101 are being added. The amendments and new claims do not add any no new matter and are fully supported by the specification. Thus, entry of the claim amendments and new claims is requested.

Section 103(a) Rejections of Claims1-30, 65-75 and 84-99

The Examiner rejected claims 1-30, 65-75 and 84-99 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,575,853 to Arami et al. (hereinafter "Arami"). This rejection is traversed.

Claim 1, as amended, is to an apparatus for processing a substrate, the apparatus comprising a chamber; and a pump adjacent to the chamber, the pump having an inlet connected to the chamber to evacuate gas in the chamber and an outlet that exhausts the evacuated gas to atmospheric pressure.

Arami teaches a processing apparatus with a vacuum exhaust system having "a main pump that is a molecular drag pump (MDP) 25 having a wide range of vacuum exhaust capabilities and a high exhaust speed, which is connected adjacent to the processing chamber 2, and an auxiliary pump that is a dry pump (DP) 27 having a low exhaust speed, which is

connected by a small-diameter auxiliary pipeline 26 to an exhaust side of the molecular drag pump, as shown in Fig. 1." (Column 4, lines 38-46.) Arami further teaches that "since this dry pump 27 is located in a utility box that is some distance from the processing chamber 2 within the clean room, a long auxiliary pipeline 26 of approximately 10 to 12 m is used." (Column 5, lines 13-16.)

Arami does not render claim 1 unpatentable under section 103(a) because Arami does not teach or suggest each and every element of the claim. Arami does not teach or suggest a pump that is adjacent to the chamber and has an outlet to exhaust evacuated gas to atmospheric pressure. The first pump taught by Arami, which is adjacent the chamber, is a molecular drag pump that exhausts gas to another pump, and does not exhaust to atmospheric pressure. The second pump taught by Arami, which is a dry pump, does exhaust gas to atmospheric pressure, but it is not adjacent to the chamber. Instead, the dry pump is a distance away from the chamber and is connected to the molecular drag pump by a long pipeline of 10 to 12 meters. Thus Arami does not teach a pump which is both adjacent to the chamber and which exhausts to atmospheric pressure, as set forth in claim 1.

Furthermore, Arami refutes the obviousness of the present claims, by demonstrating that the problem solved by Applicant's claimed invention is a long standing problem in the art. Arami teaches that it is undesirable to have a pump that is at a distance from the chamber because "the diameter of the main pipeline 41 has to be increased because the conductance of the piping system is so large." (Column 2, lines 10-13.) Arami further teaches that this "has the result of increasing the size and cost of the entire system." (Column 2, lines 14-15.) Nevertheless, while teaching that a large and costly pump line system is needed when placing the dry pump away from the chamber, Arami goes on to describe an apparatus in which the dry pump <u>is</u> placed at a distance from the chamber and connected by a long pipeline. Thus, Arami teaches that placement of the pump at a distance away from the chamber is a long standing problem in the art that could not be solved. Applicant's present claim is to an apparatus that solves the problem, and consequently, is not obvious over Arami.

Nor is it obvious to one of ordinary skill in the art to devise the claimed apparatus from the teachings of Arami. As discussed in paragraphs 4 and 5 of the accompanying

declaration from Peter Reimer, one of ordinary skill in the art, Arami does not teach an apparatus comprising a pump adjacent to the chamber that exhausts to atmosphere. The molecular drag pump taught by Arami does not exhaust to atmospheric pressure. Instead, the molecular drag pump exhausts to a dry pump and is operational only when it exhausts gas at sub-atmospheric pressures to the dry pump. The dry pump is placed at a distance from the chamber and is not adjacent to the chamber. Thus, based on the teachings of Arami, it would not have been obvious to have an apparatus having a chamber and an adjacent pump that exhausts evacuated gas to atmospheric pressure.

Thus claim 1 is patentable over Arami. Claims 2-8 depend from claim 1 and are allowable for at least the same reasons as their base claim.

Claim 9, as amended, is to an apparatus for processing a substrate, the apparatus comprising a load-lock chamber comprising an enclosure, and a pump adjacent the load-lock chamber, the pump having an inlet connected to the load-lock chamber to evacuate gas from the load-lock chamber and an outlet that exhausts the gas to atmospheric pressure.

Claim 9 is patentable over Arami, because Arami does not teach a pump that is adjacent a load-lock chamber and that exhausts to atmospheric pressure. Instead, Arami teaches a molecular drag pump that is adjacent a chamber but that exhausts to a dry pump that is not adjacent to a chamber. Furthermore, claim 9 is not obvious over Arami because even though Arami acknowledges that it is desirable to avoid having a pump that is distanced from a chamber, Arami fails to teach an apparatus having a pump that is adjacent to a load-lock chamber and that exhausts to atmospheric pressure. Thus, Arami does not teach or suggest claim 9. Claims 10-15 depend from claim 9 and are allowable for at least the same reasons as their base claim.

Claim 16 is to an apparatus for processing a substrate, the apparatus comprising a process chamber comprising a support and a gas distributor, and a pumping system comprising a pre-vacuum pump adjacent to the process chamber, the pre-vacuum pump having an inlet connected to the process chamber to evacuate gas from the process chamber and an outlet that exhausts the evacuated process gas to atmospheric pressure, whereby a substrate

held on the support is processed by process gas introduced through the gas distributor into the process chamber.

Claim 16 is patentable over Arami, because Arami does not teach a pre-vacuum pump that is adjacent a process chamber and that exhausts to atmospheric pressure. Instead, Arami teaches a molecular drag pump, which is not a pre-vacuum pump, that is adjacent a chamber and that exhausts to another pump, and a dry pump that exhausts to atmospheric pressure but that is not adjacent to a chamber. Furthermore, claim 16 is not obvious over Arami because even though Arami acknowledges that it is desirable to avoid having a pump that is distanced from a chamber, as discussed above for claim 1, he fails to teach an apparatus having a pre-vacuum pump that is adjacent to a process chamber and that exhausts to atmospheric pressure. Thus, Arami does not teach or suggest claim 16. Claims 17-23 depend from claim 16 and are allowable for at least the same reasons as their base claim.

Claim 24, as amended, is to an apparatus for processing a substrate, the apparatus comprising a chamber, a pump capable of operating at different speeds, a pump controller to control the speed of the pump, and a pressure controller to control a gas pressure of a gas in the chamber by providing a signal in relation to the gas pressure to the pump controller that changes the speed of the pump in relation to the signal from a first pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed at which the gas in the chamber is evacuated at a second volumetric flow rate.

Arami teaches that " the first to fourth valves 28, 30, 22, and 36, the molecular drag pump 25, and the dry pump 27 are controlled in accordance with detection values fed back from the first to third pressure sensors 28, 30, and 33 and predetermined programming that is previously input to a control apparatus 40." (Column 5, lines 65-67 and column 6, lines 1-3.) Arami further teaches that "when the first pressure sensor 37 of the processing chamber 2 detects that the pressure within the processing chamber 2 has reached 20 Torr, the molecular drag pump 25 is activated" (column 6, lines 19-22) and that "the pressure within the processing chamber 2 is maintained at the predetermined level by the pressure control valve 30." (Column 6, lines 50-52.)

Claim 24 is patentable over Arami because Arami does not teach or suggest a pressure controller to control the pressure of a gas in a chamber by changing the speed of a pump from a first pump speed at which the gas is evacuated at a first volumetric flow rate to a second pump speed at which gas is evacuated at a second volumetric flow rate. Instead, Arami merely teaches a control apparatus that turns on a molecular drag pump once a gas pressure of 20 Torr has been detected. Thus, the control apparatus of Arami does not change the speed of the pump from a first speed at which the gas is evacuated at a first volumetric flow rate to a second speed at which the gas is evacuated at a second volumetric flow rate because, before the pump is activated, the pump is not evacuating the gas. Thus, Arami does not teach or suggest the invention recited in claim 24.

Furthermore, the apparatus recited in claim 24 is not obvious in view of the teachings of Arami, because Arami does not teach a pump controller capable of controlling the pressure of the gas by changing the speed of a pump. Instead, Arami teaches that "the pressure within the processing chamber 2 is maintained at the predetermined level by the pressure control valve 30." (Column 6, lines 50-52.) Thus, based on the teachings of Arami, one of ordinary skill in the art would have been led towards an apparatus comprising a control valve to control pressure instead of an apparatus adapted to change the speed of a pump to control pressure. Thus, claim 24 is patentable over Arami. Claims 25-30 depend from claim 24 and are patentable for at least the same reasons as their base claim.

Claim 65, as amended, is to an apparatus for processing a substrate, the apparatus comprising a chamber capable of holding a substrate and processing the substrate in a gas, a pump capable of evacuating a gas from the chamber, the pump capable of changing its speed, and a pump controller adapted to provide a signal to the pump to vary the speed of the pump from a first pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed at which the gas in the chamber is evacuated at a second volumetric flow rate to control the rates of evacuation of the gas in the chamber to reduce condensation of moisture in the chamber.

Claim 65 is patentable over Arami because Arami does not teach or suggest an apparatus comprising, inter alia, a pump controller as recited in the claim. Instead, Arami

teaches an apparatus controller that activates a pump from a state in which the pump is off and not evacuating gas at a first volumetric flow rate from the chamber to a state in which the pump is on. Claim 65 is further non-obvious over Arami because Arami does not teach or suggest a pump controller that is adapted to vary the speed of a pump to control a rate of evacuation of the gas in the chamber to reduce condensation of moisture in the chamber. Thus, claim 65 is patentable over Arami. Claims 66-75 depend from claim 65 and are patentable for at least the same reasons as their base claim.

Claim 84, as amended, is to an apparatus for processing a substrate, the apparatus comprising a chamber capable of holding a substrate and processing the substrate in a gas, a pump capable of evacuating a gas from the chamber, the pump being capable of operating at different speeds, and means for changing a speed of the pump from a first pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed at which the gas in the chamber is evacuated at a second volumetric flow rate to control the rates of evacuation of the gas to reduce condensation of moisture in the chamber.

Claim 84 is patentable over Arami because Arami does not teach or suggest n apparatus comprising, inter alia, means for changing a speed of the pump from a first pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed, as recited in the claim. Instead, Arami teaches an apparatus controller that activates a pump to evacuate a gas from a chamber from a state in which the pump is not evacuating the gas from the chamber. Furthermore, Arami does not teach or suggest a means for changing the speed of a pump to control a rate of evacuation of the gas to reduce condensation of moisture in the chamber. Thus, claim 84 is patentable over Arami. Claims 85-91 depend from claim 84 and are patentable for at least the same reasons as their base claim.

Claim 92, as amended, is to an apparatus for processing a substrate, the apparatus comprising a chamber capable of holding a substrate and processing the substrate in a gas, and a pump having an inlet connected to the chamber via a foreline for evacuating gas in the chamber, the foreline having an internal surface area of less than about 0.4 m^2 for a length of about 2 m, and the pump having an outlet that exhausts the evacuated gas to atmospheric pressure.

Arami teaches that a "molecular drag pump is connected adjacent to the processing chamber 2 by a short main pipeline 29 having a first valve 28 and of a predetermined aperture, such as approximately 100 mm." (Column 4, lines 65-67, and column 5 line 1.) Arami further teaches that "a dry pump ... is connected to the exhaust side of the molecular drag pump 25 by the auxiliary pipeline." (Column 5, lines 2-5.)

Claim 92 is patentable because Arami does not teach or suggest a pump connected to a chamber via a foreline having an internal surface area of less than about $0.4m^2$ for a length of about 2 m and having an outlet that exhausts the evacuated gas to atmospheric pressure. Arami teaches a molecular drag pump that is connected adjacent to a processing chamber by a short main pipeline, however, this pump does not evacuate to atmospheric pressure. Instead, the molecular drag pump exhausts evacuated gas to a dry pump. As explained above, the molecular drag pump taught by Arami does not exhaust to atmospheric pressure. Thus, Arami does not teach or suggest the pump and foreline of claim 92 and does not render claim 92 unpatentable. Thus, claim 92 is patentable over Arami. Claims 93-96 depend from claim 92 and are allowable for at least the same reasons as their base claim.

Claim 97, as amended, is to an apparatus for processing a substrate, the apparatus comprising a chamber capable of holding a substrate, and a pump having an inlet connected to the chamber via a foreline for evacuating gas in the chamber, the foreline having an internal surface area of less than about 0.4 m^2, and the pump having an outlet that exhausts the evacuated gas to atmospheric pressure. Thus, Arami does not render this claim unpatentable, because Arami does not teach or suggest a pump connected to a chamber via a foreline having an internal surface area of less than about $0.4m^2$ and an outlet that exhausts the evacuated gas to atmospheric pressure. While Arami teaches a molecular drag pump that is connected adjacent to a processing chamber by a short main pipeline, this pump does not evacuate to atmospheric pressure. Instead, the molecular drag pump exhausts evacuated gas to a dry pump. As discussed for claim 1 above, the molecular drag pump taught by Arami is not capable of exhausting to atmospheric pressure. Thus, Arami does not teach or suggest the pump and foreline of claim 97 and does not render claim 97 unpatentable. Thus, claim 97 is patentable over Arami. Claims 98-99 depend from claim 97 and are allowable for at least the same reasons as their base claim.

Section 103(a) Rejections of Claims 38-64

The Examiner also rejected claims 38-64 under 35 U.S.C. 103(a) as being unpatentable over Arami taken in further view of U.S. Patent No. 5,651,867 to Kokaku et al (hereinafter "Kokaku") or U.S. Patent No. 5,174,827 to Misiano et al (hereinafter "Misiano"). This rejection is traversed.

Claim 38 is to an apparatus for processing a substrate, the apparatus comprising a pump having a plurality of inlet ports, a first inlet port provided to evacuate gas from a first chamber or first pump, and a second inlet port provided to evacuate gas from a second chamber or second pump.

Arami teaches an apparatus comprising a processing chamber with a vacuum exhaust system that comprises "a main pump that is a molecular drag pump ... which is connected adjacent to the processing chamber 2, and an auxiliary pump that is a dry pump (DP) 27 ... which is connected by a small-diameter auxiliary pipeline 26 to an exhaust side of the molecular drag pump." (Column 4, lines 39-46.) Arami further teaches that the "molecular drag pump 25 is connected adjacent to the processing chamber 2 by a short main pipeline 29" (column 4, lines 65-67), and that the auxiliary pump is connected by an auxiliary pipeline 26 to an exhaust side of the molecular drag pump (column 4, lines 45-47.)

Arami does not render claim 38 unpatentable because Arami does not teach or suggest every element of the claim. Arami does not teach a pump having a first inlet port to evacuate gas from a first chamber or pump and a second inlet port to evacuate gas from a second chamber or pump. Instead, Arami teaches a molecular drag pump that is connected to a processing chamber and which exhausts to a dry pump. Thus the molecular drag pump taught by Arami only has a single inlet port to evacuate gas from a chamber. Arami further teaches a dry pump that is connected to the exhaust side of the molecular drag pump and that can also evacuate the chamber. However, as is apparent upon examination of Figures 1 and 3, this dry pump also only has a single inlet port (which leads to the auxiliary pipeline). Thus Arami does not render claim 1 unpatentable because Arami does not teach or suggest a pump having a plurality of inlet ports.

Kokaku does not make up for the deficiencies of Arami. Kokaku teaches a plasma processing apparatus having, in a first form, "an evacuation system 9 for keeping the interior of the vacuum a chamber 1 at a pressure not higher than atmospheric pressure, and valves 9a for operatively separating the vacuum chamber i from the evacuation system 9." (Column 4, lines 48-52.) Kokaku further teaches an in-line processing system in which "each of the containers or chambers is placed on a base 500 and connected to an evacuation system contained in the base. The evacuation system comprises a valve 95 and a vacuum pump 96 shown in Fig. 5 with doors 501 open. The evacuation system is communicated with the respective chamber through the valve 95." (Column 6, lines 66-67 and column 7, lines 1-4.)

Kokaku, like Arami, also does not teach a pump having a plurality of inlet ports. Instead, Kokaku teaches an evacuation system (which, as shown in Figure 1, could include various conduits, valves, etc.), connected to three chambers. Kokaku does not teach where and how a pump may be configured in this embodiment. Specifically, Kokaku does not teach or suggest a pump connected to multiple chambers or pumps by a plurality of inlet ports.

In fact, Kokaku teaches against a pump having a plurality of inlet ports by teaching an in-line processing system in which each chamber is connected to an evacuation system contained in a base below the chamber. Kokaku teaches that each evacuation system comprises a vacuum pump that communicates with its respective chamber through a valve. Thus, Kokaku does not teach an apparatus comprising a pump having a plurality of inlet ports to evacuate gas from a first and second chamber or pump, as recited in claim 38. Instead, Kokaku teaches a processing system having a plurality of pumps that each have a single inlet connected to a single chamber. Thus, Kokaku does not render claim 38 unpatentable because Kokaku does not teach or suggest a pump having a plurality of inlet ports.

Misiano also does not make up for the deficiencies of Arami or Kukano. Misiano teaches "two deposition chambers 1 connected by rearwardly and inwardly angled vacuum ducts 3 to a central pumping unit 3 which is connected to a computerized center system 4 for control of the operations and for effecting control of the process." (Column 2, lines 6-10.) Misiano further teaches that the apparatus comprises "a further horizontal vacuum duct between said inwardly angled vacuum ducts and communicating therewith; and vacuum

pumping means connected to said further horizontal vacuum duct and received between said inwardly angled vacuum ducts." (Column 2, lines 35-40.)

Misiano does not teach or suggest a pump having a plurality of inlet ports. Instead, Misiano teaches angled vacuum ducts connected to a central pumping unit. Misiano gives no suggestion, and does not teach, that this central pumping unit comprises a pump having a multiple inlet ports to connect to first and second chambers. Thus, Misiano does not render claim 38 unpatentable because Misiano does not teach or suggest the pump having a plurality of inlet ports recited in the claim.

Thus, claim 38 is patentable over Arami, Kokaku and Misiano. Claims 39-47 depend from claim 38 and are allowable for at least the same reasons as their base claim.

Claim 48 is to an apparatus for processing a substrate, the apparatus comprising a multiple inlet pump having a first inlet port in a first inlet stage, and a second inlet port in a second inlet stage, the first inlet port provided to evacuate gas from a first chamber or first pump, and a second inlet port provided to evacuate gas from a second chamber or second pump.

Claim 48 is patentable over Arami because, as discussed above, Arami does not teach or suggest a pump comprising a plurality of inlet ports. Instead Arami teaches a pump having a single inlet port to connect to a chamber. Kokaku and Misiano do not make up for the deficiencies of Arami, because they also do not teach or suggest a pump comprising a plurality of inlet ports. Instead, Kokaku teaches an evacuation system that is connected to a plurality of chambers. Kokaku does not teach that this evacuation system comprises a pump comprising a plurality of inlet ports. Misiano teaches a central pumping unit but does not teach a pump comprising a plurality of inlet ports. Furthermore, neither Arami, Kokaku or Misiano teach or suggest a multiple inlet port pump comprising a first inlet port in a first inlet stage and a second inlet port in a second inlet stage.

Thus, claim 48 is patentable over Arami, Kokaku and Misiano. Claims 49-55 depend from claim 48 and are allowable for at least the same reasons as their base claim.

Claim 56 is to an apparatus for processing a substrate, the apparatus comprising a plurality of chambers that are shaped and sized to hold one or more substrates, and a pump having a first inlet port in a first inlet stage, and a second inlet port in a second inlet stage, the first inlet port provided to evacuate gas from one chamber and a second inlet port provided to evacuate gas from another chamber.

Claim 56 is patentable over Arami because, as discussed above, Arami does not teach or suggest a pump comprising a plurality of inlet ports. Instead Arami teaches a pump having a single inlet port to connect to a chamber. Kokaku and Misiano do not make up for the deficiencies of Arami, because they also do not teach or suggest a pump comprising a plurality of inlet ports. Instead, Kokaku teaches an evacuation system that is connected to a plurality of chambers. Kokaku does not teach that this evacuation system comprises a pump comprising a plurality of inlet ports. Misiano teaches a central pumping unit but does not teach or suggest a pump comprising a plurality of inlet ports. Furthermore, neither Arami, Kokaku or Misiano teach or suggest a multiple inlet pump comprising a first inlet port in a first inlet stage and a second inlet port in a second inlet stage.

Thus, claim 56 is patentable over Arami, Kokaku and Misiano. Claims 57-65 depend from claim 56 and are allowable for at least the same reasons as their base claim.

Conclusion

The rejected claims distinguish over the applied references at least for the reasons given above. The Examiner is respectfully requested to reconsider the present rejections and allow the pending claims. Should the Examiner have any questions, the Examiner is requested to call the undersigned representative of the Applicant.

Respectfully submitted,

JANAH & ASSOCIATES
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Dated: 3/9/01

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AMENDED CLAIMS MARKED WITH CHANGES

1.(amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a chamber; and

(b) a pump adjacent to the chamber, the pump having an inlet connected to the chamber [for evacuating] to evacuate gas in the chamber and an outlet that exhausts the evacuated gas to atmospheric pressure.

7.(amended) An apparatus according to claim 1 further comprising a pressure controller [for controlling] to control the pressure of the gas in the chamber by adjusting a speed of the pump.

9.(amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a load-lock chamber comprising an enclosure; and

(b) a pump adjacent the load-lock chamber, the pump having an inlet connected to the load-lock chamber [for evacuating] to evacuate gas from the load-lock chamber and an outlet that exhausts the gas to atmospheric pressure.

15.(amended) An apparatus according to claim 9 further comprising a pressure controller [for controlling] to control the pressure of the gas in the load-lock chamber by adjusting a speed of the pump.

23.(amended) An apparatus according to claim 16 further comprising a pressure controller [for controlling] to control the pressure of the process gas in the process chamber by adjusting a speed of the pre-vacuum pump.

24.(amended) An apparatus for processing a substrate, the apparatus comprising a chamber, a pump capable of operating at different speeds, a pump controller to control the speed of the pump, and a pressure controller [for controlling] to control a gas pressure of a gas in the chamber by providing a signal in relation to the gas pressure to [a] the pump controller that changes the speed of the pump in relation to the signal from a first

pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed at which the gas in the chamber is evacuated at a second volumetric flow rate.

47.(amended) An apparatus according to claim 38 further comprising a pressure controller [for controlling] to control the pressure of gas in the chambers by adjusting a speed of the pump.

55.(amended) An apparatus according to claim 48 further comprising a pressure controller [for controlling] to control the pressure of gas in the chambers by adjusting a speed of the pump.

64.(amended) An apparatus according to claim 56 further comprising a pressure controller [for controlling] to control the pressure of gas in the chambers by adjusting a speed of the pump.

65.(amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a chamber [for] capable of holding [the] a substrate and processing the substrate in a gas; [and]

(b) a pump [for] capable of evacuating a gas from the chamber, the pump capable of changing its speed; and

(c) a pump controller adapted to provide a signal to the pump to vary the speed of the pump from a first pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed at which the gas in the chamber is evacuated at a second volumetric flow rate to control the rates [and control a rate] of evacuation of the gas in the chamber to reduce condensation of moisture in the chamber.

72.(amended) An apparatus according to claim 65 further comprising a pressure gauge [for measuring] to measure a pressure of the gas in the chamber and [providing] provide a signal to the pump controller and wherein the pump controller changes the speed of the pump in relation to the signal.

84.(amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a chamber [for] capable of holding [the] a substrate and processing the substrate in a gas;

(b) a pump [for] capable of evacuating a gas from the chamber, the pump being capable of operating at different speeds; and

(c) means for changing a speed of the pump from a first pump speed at which the gas in the chamber is evacuated at a first volumetric flow rate to a second pump speed at which the gas in the chamber is evacuated at a second volumetric flow rate to control the rates [to control a rate] of evacuation of the gas to reduce condensation of moisture in the chamber.

92.(amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a chamber [for] capable of holding a substrate and processing the substrate in a gas; and

(b) a pump having an inlet connected to the chamber via a foreline for evacuating gas in the chamber, the foreline having an internal surface area of less than about 0.4 m^2 for a length of about 2 m, and the pump having an outlet that exhausts the evacuated gas to atmospheric pressure.

97.(amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a chamber [for] capable of holding [the] a substrate; and

(b) a pump having an inlet connected to the chamber via a foreline for evacuating gas in the chamber, the foreline having an internal surface area of less than about 0.4 m^2, and the pump having an outlet that exhausts the evacuated gas to atmospheric pressure.